1: Longrigg G-4, 5 (ca. 1915-1940) MH1 Iraq MH1

were decked for road traffic, passable tracks were pushed far into the Kurdish hills. A 900-foot steel bridge over the Euphrates at Faluja was begun by British contractors, Messrs. Balfour, Beatty & Co., in 1927 and, after interruption by floods and a law case, completed in 1932. Permanent steel bridges across the Tigris at Baghdad and at Mosul were planned, and the latter well begun in 1932. A significant project was the road begun in 1927, and after remarkable engineering feats completed five years later, to connect the 'Iraqi system at Arbil with that of Adharbayjan at Tabriz. The 'Iraqi section, first used by experimental convoys in 1931, passed through the fabulous Rawanduz Gorge and was completed by the Persian section to the shores of Lake Urmiya; but its power to divert the Tabriz trade from Batum or Trebizond to Baghdad was doubtful. The close of the period saw the increased use of a direct Baghdad–'Amman route, and the first experiments in developing a pilgrim highway from Najf to Madina.

The Tigris steamers operated by the Lynch Company and their local competitors doubtfully held their own against rail, air, and road competition, and had little scope for development. The veteran *Blosse Lynch* and the *Baghdad* were sold as scrap in 1927, *Mejidieh* in 1928, and two R.A.F.-owned steamers, the *S.*16 and *S.*14 were acquired in 1927 by the Euphrates Company, to be renamed *Blosse Lynch* and *Mejidieh*; they were joined by the *Tigris* in the same year. The *Zobaida* ceased to be in commission after 1929. At Baṣra Port the bar-dredging operations at Fao, provisionally completed in 1926, were carried further in 1928–30. They resulted in a dredged channel—the Rooka—giving 30 instead of 28 feet of water at high tide (as compared with 20 feet in 1920) and easier movement over the inner bar. The bulk of the Port traffic consisted, as ever, of oil tankers proceeding to and from Abadan, but the Shaṭṭ was used regularly also by the Strick, British India, City, and other British lines, by the (German) Hansa Line and by an occasional ship of the U.S.S.R. or of Sweden. The new Port headquarters ranked among 'Iraq's most imposing buildings. The dredging loan of £460,000 from the Anglo-Persian had soon been repaid, and substitution of 'Iraqi for British and Indian personnel continued. Colonel Ward's Port administration, grouped as a department under Finance, was normally prosperous though badly afflicted by the slump of the years 1929 to 1932. It continued to pay to Great Britain the annual instalments fixed in 1922 as the cost of acquisition, but formation of the Port Trust then envisaged, and again provided in the 1930 Treaty, was not yet in sight.

The history of 'Iraq Railways was at this period uneventful. Their status as between British ownership and 'Iraq Government

1: Longrigg G-4, 5 (ca. 1915-1940) MH1 Iraq MH1

considered project; and meanwhile, Fao bar-dredging operations, designed to maintain a low-water depth of 23 feet in a substantially widened Rooka channel, proceeded throughout 1943 to 1950. But heavy floods and consequent silt movement caused serious difficulties and, the existing channel proving barely maintainable, the project of a new channel re-aligned in terms of the changed sea-bed conditions was in 1951 under close consideration. To its realization—the more necessary since 'Iraq's own oil traffic from the Zubayr field was likely to increase many-fold—the loss of the rich Abadan tanker revenue was a serious impediment;[1] but in general the future of the vital Fao channel, and indeed that of the Port in general, was under wise and far-sighted review.

The tonnage of steamers using the Port was more than half—and in some years more than two-thirds—British, with Dutch, American, Greek, Swedish, and Norwegian shipping well represented. The establishment of an all-'Iraqi Shipping Company continued to be an object of ambition among the interested and the nationally-minded, as a means of undercutting the freight rates charged by foreign lines. The post of Port Director was assumed, after two short tenures, in 1947 by Colonel G. T. Johnson, and in 1951 by R. C. Kelt. Accelerated steps were taken from 1948 onwards for the training, largely in Europe, of 'Iraqis for all posts in the administration, including the highest: an 'Iraqi Port Director was a probability of the near future.

Though transport by the 'Iraq waterways had as ever its irreplaceable part both in the lives of the riverain towns and as a main Baṣra–Baghdad artery, available traffic did not permit—as for a generation it had not permitted, save in war-time—any considerable development of the Tigris steamships. Military transport ceasing with the war, and competition by road and rail and air ever increasing, the Euphrates and Tigris Company in 1946 disposed of most of its surviving fleet, including the *Zenobia*; and early in 1951 it went into voluntary liquidation and sold the bulk of its towing-units and barges to its principal local competitor, Ḥannā al-Shaykh. The latter and members of the Khudhayri family remained active on the river to fill the place which, after ninety years, was now abandoned as unprofitable by the Lynch enterprise.

The 'Iraq Railways, which had embarked in 1945 (p. 320) on important projects of construction, were faced also by a heavy programme of needed rehabilitation, improvement of services, and addition to rolling-stock. The five following years saw the com-

[1] The action of the Persian Government in bringing its oil industry to a standstill involved, besides its own ruin, a loss of at least £1 million a year to the finances of Baṣra Port and its dredging scheme.

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

The Port

504 The Port of Basra, an autonomous public agency which also operates the civil airport, is efficiently run and capable of handling a considerable increase in traffic. In view of the adequacy of this port, the Mission sees no justification for the construction of another port at Umm Qasr as has been suggested from time to
503 time. The Port of Basra has been able to finance necessary capital improvements, as well as to pay off its debts, out of current surpluses and should be able to do so in the future except for the task of financing the dredging of a new and urgently needed channel across the Fao bar. The existing channel is subject to heavy silting which necessitates extensive dredging operations at a cost of ID 500,000 to ID 600,000 per year. Until recently it was expected that the Anglo-Iranian Oil Company would advance the funds necessary for this new channel, but recent developments in Iran, coupled with the fact that ample oil revenues will be available to Iraq for investment, appear to make it desirable that the Development Board finance this project.

The Railways

496 The state railways, which are the principal means of transport, are also well managed and have been fully able to meet traffic requirements. They have come in for considerable criticism, however, because of the serious financial difficulties in which they have become involved. The major source of these difficulties lies in the fact that, in 1944, the railways, with the full approval of the government, began a major capital development program without assurance of adequate financing. To defray the cost, the railways have had to use a fund of about ID 2,500,000 set aside for renewals and to borrow ID 1,000,000 from the government as well as £3,000,000 in the United Kingdom with the help of the Export Credits Guaranty Department of the British Government. The program was for the most part soundly conceived and is now largely completed. However, it has left the railways without adequate funds not only for essential renewals but also for other construction pro-
498 jects. One of the major and more controversial projects affected
496 is the erection in Baghdad West of a rather imposing terminal station and railway headquarters together with relocation of railway

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and meteorological services. At the Baghdad airport it would be desirable to build an entirely new runway and to use a wing of the new railway building as the air terminal. The Port of Basra can finance the necessary work there, but that at Baghdad, costing probably between ID 250,000 and ID 300,000, will presumably have to be financed out of Development Board funds. The Mission has no specific recommendations to make on Iraqi Airways, which assures some internal and international services with a small fleet of four planes, except to suggest that its finances be completely divorced from those of the railways. It is neither logical nor sound financially to require the railways to defray the deficits of the airways. It would be desirable to carry out any future development of the airways in cooperation with other Middle Eastern countries.

Inland water navigation has steadily declined in importance and is now rather insignificant. While irrigation rather than navigation will always be the primary consideration in the use of available water resources, it is possible that the better regulation of the Tigris and Euphrates will ultimately result in some improvement in the navigability of these rivers. Limited but uninterrupted navigation might be insured if the river bed were trained by dams, locks and groynes into a narrow channel at low water and progressively wider channels at higher water levels. The feasibility and cost of such a scheme might ultimately be submitted for study to experts from the Netherlands where similar conditions have long been encountered.

Roads and Road Transport

Road transport has not assumed great importance in the past, primarily because most roads are unsurfaced and impassible for a large part of the year. Even large communities like Kut and Amara, although not situated on railway lines, are not served by all-weather roads. An interdepartmental committee worked out and presented in 1950 a 10-year program for the construction or improvement of 37 main surfaced roads involving a total length of 3,463 kilometers at an aggregate cost of ID 14,500,000. Both the program and the proposed specifications of the roads are sound. In addition, the building or improvement of about 8,000 kilometers of secondary or feeder roads, which do not need to be surfaced, will ultimately

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ANNEX E

TRANSPORT AND COMMUNICATIONS

489 Iraq's transport system, which is concentrated in the populated and cultivated eastern half of the country, converges on two points, Baghdad, the capital and trade center, and Basra, the country's only port.

504 The Port of Basra lies about 140 kilometers (85 miles) upstream from the Persian Gulf on the Shatt al Arab and is accessible to ocean-going ships of all sizes entering the Persian Gulf. Its site serves the economy of Iraq well, the junction of the cheaper ocean transport with the dearer inland transport being at the farthest practical point inland.

• 503 The Tigris and the Euphrates, together with their tributaries, offer natural transport routes. However, they have remained untrained and largely uncontrolled for centuries and, apart from a few short stretches on the rivers and their tributaries which are usable by local traffic, limited and restricted inland navigation is possible today only on the Tigris between Basra and Baghdad.

496 The railway system consists of three main lines, two of narrow gauge, one of standard gauge. One of the two meter-gauge lines is the main line from Baghdad to Basra, serving the most densely populated provinces besides connecting the two principal centers. The other links Baghdad with the northeastern provinces, east of the Tigris. The standard-gauge line runs from Baghdad on the right bank of the Tigris to Mosul, Iraq's second city, and beyond through a tip of Syria to Turkey, the Mediterranean and Europe. Until a year ago no physical junctions existed between the three main lines. Goods carried on both meter-gauge lines had to be ferried across the Tigris at Baghdad and then transshipped. The ferry has now been replaced by a bridge but the transshipment to and from the standard-gauge line remains necessary. Through passenger traffic between the three main lines is negligible.

491 A road system of approximately 8,000 kilometers (5,000 miles) covers the eastern half of the country, but most of the roads

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TABLE 2

PORT OF BASRA BUDGET*
(in millions of dinars)

Year	Revenue	Expenditures			Balance
		Ordinary	Capital	Total	
1942-43	1.11	0.71	0.04	0.75	+0.36
1943-44	1.19	0.90	0.03	0.93	+0.26
1944-45	1.19	0.93	0.04	0.97	+0.22
1945-46	1.14	1.05	0.09	1.14	—
1946-47	1.25	1.14	0.10	1.24	+0.01
1947-48	1.51	1.27	0.22	1.49	+0.02
1948-49	1.66	1.50	0.18	1.68	−0.02
1949-50	1.62	1.43	0.19	1.62	—
1950-51	1.52	1.45	0.65	2.10	−0.58
1951-52	1.53	1.53	0.65	2.18	−0.65

* Actual budget figures for the years up to and including 1949-50; revised estimates for 1950-51, and budget estimates for 1951-52.

It will be noted that until recent years there was a surplus of income over both ordinary and capital expenditures. Current deficits are being met from the cumulative surplus of the past.

Development programs of the Port now in progress consist of an extension to the power station, extensions and improvement of roads in the Port area, machinery and plant for road maintenance, improvements of the airport, an extension of the hotel, new buildings, staff quarters, laborers' dwellings, river conservation work, and extensions and improvements to wharves and warehouses, including handling equipment. For the financial year 1951-52 the cost of this capital budget program has been estimated at about ID 650,000. Similar expenditures will be required in the years to follow.

The Dredging Scheme

The Port's most important maintenance works program is concerned with the dredging of the entrance channel through the Fao Bar, so much so that a separate budget is maintained for the Bar Dredging Scheme with its own revenues from dredging dues levied on shipping. Up to four and a half million cubic yards must be dredged in a year to maintain the channel's width and depth, at a cost of from ID 500,000 to 600,000 per year covered

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503 by dues received from Abadan and Basra shipping. The budgets of the Dredging Scheme are summarized in Table 3. It will be noted that until the last two years surpluses accrued even after allowing for capital expenditures.

TABLE 3

FAO BAR DREDGING SCHEME BUDGET[1]
(in millions of dinars)

Year	Revenue	Expenditures			Balance
		Ordinary	Capital	Total	
1942-43	0.44	0.34	0.01	0.35	+0.09
1943-44	0.51	0.39	0.01	0.40	+0.11
1944-45	0.69	0.45	—[2]	0.45	+0.24
1945-46	0.73	0.49	0.04	0.53	+0.20
1946-47	0.70	0.48	0.05	0.53	+0.17
1947-48	0.76	0.54	0.07	0.61	+0.15
1948-49	0.91	0.54	0.17	0.71	+0.20
1949-50	0.95	0.61	0.19	0.80	+0.15
1950-51	0.94	0.73	0.36	1.09	−0.15
1951-52	0.95	0.79	1.10	1.89	−0.94

[1] Actual budget figures for the years up to and including 1949-50; revised estimates for 1950-51, and budget estimates for 1951-52.
[2] Negligible.

Thorough investigations and studies by the Port's engineers and consultants, supplemented by experiments on a tidal model of the river constructed by the National Physical Laboratory at Teddington, England, have now reasonably well established that the dredging of a new channel straight from the mouth of the river should ensure reduced maintenance dredging after completion. The present channel, though shorter, has a bend near the river mouth and now runs at right angles to cross currents which deposit more and more silt in the channel. There is no doubt that the new channel should be constructed.

The dredging of this new channel is the only major development facing the Port authorities. The cost would be at least ID 2,000,000 spread over a few years, but the ultimate savings in current dredging expeditures would make it a very worthwhile investment. Part of the cost is already reflected in the Dredging Scheme's capital budget for 1951-52 which, for instance, provides

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ID 400,000 for the purchase of a new dredger. The Port cannot, however, be expected to finance the construction of a new channel out of its own resources. The combined current receipts of the Port and the Dredging Scheme, together with the surpluses of the past, should be sufficient to cover the cost of ordinary capital improvements, but not of a large project such as the channel. It was originally expected that the Anglo-Iranian Oil Company might lend the necessary funds for the channel. Recent developments have made this possibility more remote, and in any event it may now be much more advisable to finance the project out of the oil revenues which will accrue to the Development Board.

Proposed Port at Umm Qasr

From time to time proposals have been put forward for the construction of a new port at Umm Qasr, on an inlet from the Gulf, south of Basra. Temporary installations at this site and a military branch line of the railway from Basra were in operation during the war. The alternative was warranted in those exceptional years, in case war operations should impede the operation of Basra Port. The Umm Qasr port installations have since been abandoned and there is now nothing left which might be used as a nucleus for port development. The advantage of a shorter entrance channel which would require less dredging than the river to Basra is offset by the considerably greater cost of inland transport over sea-going transport. The entrance is not free from silting, and the Fao bar will still have to be kept passable for Shatt al Arab shipping.

For several other reasons this project should not be pursued further at present. Basra Port is capable of handling much larger volumes of traffic than at present. The construction of a new port would be expensive; a new town would have to be built; the port would duplicate, not supplement, existing facilities; and the port would require communications with the hinterland involving additional capital expenditures for railways and roads. As mentioned earlier the new port's site would be nearer the sea, thereby shortening the cheaper ocean haul and materially lengthening the expensive overland haul. Trade concerns now well established at Basra would be reluctant to duplicate their operations at the new port, let alone transfer their business there.

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504 *Staff*

The Port Directorate has done its best to train Iraqi personnel in every level of employment. It takes time to develop the highly specialized skills required but the training process is well advanced. In May 1951 two senior and seven assistant posts of primary importance remained unoccupied in the Port Administration, and two senior and two assistant posts of the same urgency were unfilled in the Bar Dredging Scheme offices. These should be filled promptly for a period of years by qualified foreign nominees. The training of Iraqi staff members in the Port's own territory and abroad should be continued and extended as much as is practical.

In summary, the Mission's recommendations concerning the Port's development problems are:

1. The training program to overcome the shortage of technical staff experienced in port operation, administration, maintenance and construction should be continued and expanded as much as possible.
2. The dredging of the new entrance channel should be carried out.
3. Construction of a new port at Umm Qasr should not be undertaken.

II. Maritime Shipping

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The Port of Basra is extremely well served by many experienced world shipping lines. There is, therefore, no justification for the creation of an Iraq shipping line. Coastal shipping is nonexistent, since Iraq possesses only one port and neighboring countries can provide no traffic for such a venture.

III. Inland Water Transport

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Nature has provided Iraq with a number of important waterways in its two large rivers, the Tigris and the Euphrates, and their many tributaries. Until a few years ago, the Tigris, in its lower reaches in the plains, was navigable at all seasons from

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above Baghdad to Basra, but this is no longer so. The variations in the flow of water are wide, floods occur at high water, there is heavy silting at low water, the river bed steadily rises and the curvature increases more and more—features typical of the behavior of rivers which remain untrained for centuries. 503

The Port Directorate of Basra has control over inland navigation. The control is nominal, however, and is limited to the Tigris between Basra and Baghdad and the Gharraf canal, a tributary joining at Kut. There is a separate budget for the purpose but it amounts to only a few thousand dinars annually, spent on navigation aids, few and far apart. The last remaining regular navigation company, the Euphrates and Tigris Steam Navigation Company, ceased operations in 1949, and only small private concerns continue to operate barges which are mostly propelled by low-powered motor launches. [505]

At the present time the Tigris between Basra and Baghdad is navigable for vessels up to four feet draught during the seven months from February to August, except for short flood periods in April and May in some years. Navigation during the remaining five months, September to January, is impeded for long periods by:

1. Low water in the Narrows in the lower reaches below Amara, for periods up to three weeks,
2. Low water at Amara, causing the floating bridge to ground, for periods up to six weeks,
3. Closure of the Kut barrage lock for irrigation requirements, for periods up to eight weeks.

Between seasons the water levels vary up to 25 feet at Baghdad, up to 35 feet south of Kut barrage and up to 7 feet at the Narrows.

Inland water transport has ceased to be a factor of importance in the country's transport system. The waters of the rivers are used primarily for irrigation and their flow is controlled only with a view to serving irrigation requirements. In the future irrigation will continue to have the principal claim on the available water supply. This does not mean, however, that a revival of inland navigation will be incompatible with irrigation. In the monograph on flood control and irrigation it has already been pointed out that measures to control the dissipation of water from the lower reaches

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of the Tigris into the marshes would leave more water in the river bed.[1] Navigability might be improved further if the river bed were trained by dams, locks, groins and cribs into a narrow channel at low water and progressively wider channels at higher water levels. Through such measures, limited but uninterrupted navigation could be made possible. It would be necessary, however, to consider whether the cost would not be such as to make river transport uneconomic. As a first step it might be advisable to have the feasibility and cost of training the river bed studied by engineers from the Netherlands who have had experience with similar problems.

IV. Railways

The railways are the principal means of inland transport, carrying by far the greater part of the country's imports, exports and internal traffic. The chief commodities carried in bulk are oil, bricks, cement and other building materials, grains and dates.

The total length of the railway system is 1,030 miles (1,648 kilometers) of which 330 route miles (529 kilometers) are standard gauge and 700 route miles (1,119 kilometers) meter gauge. The first railway line in Iraq was completed in 1914 and ran north from Baghdad to Samarra as part of the projected Berlin-Baghdad railway. The Iraqi portion of this standard-gauge railway was not fully completed until 1940 and it is now the only railway link between Iraq and neighboring countries. The balance of the railway network consists of meter-gauge lines, large portions of which were first constructed during World War I when only meter-gauge rolling stock was readily available. One of these lines runs from Basra to Baghdad, following the Euphrates River. The other extends from Baghdad to Erbil via Kirkuk, with a short spur to Khanaqin. The part from Kirkuk to Erbil was finished only in 1949. Until 1950 when a railway bridge was completed across the Tigris, the two meter-gauge lines were connected only by a wagon ferry. Even now there is virtually no through passenger traffic on the two lines. It should be noted that there is no longer a railway south of Baghdad serving the towns along or near the

[1] See Annex B, *Flood Control, Irrigation and Drainage*, pp. 202-203.

504 The port of Basra proper, which was founded in A.D. 636 or 637, a few years after the conquest of Mesopotamia by the Arabs, and has been razed and rebuilt through the centuries, is situated some 130 kilometres from the mouth of the river. The town of Basra, which, together with the port, constitutes an important commercial centre and is the terminal point of the caravan route between Arabia and the coast, is situated 3 kilometres from the port, on the bank of a small creek which joins the Shatt al-Arab.

• [503] The river[1] is sufficiently navigable up to and just beyond Basra to admit seagoing vessels of up to 10,000 tons. Nevertheless, access to the river is limited by the circumstance that dredging is constantly required in the Ruka Channel (7.2 kilometres) and the Fao Channel (nearly 10 kilometres); it is endeavoured by dredging to maintain a depth of 7 to 7.3 metres.

The maritime district of Basra is called Ma'agil. Its main pier is 1,525 metres long and has nine points where vessels may dock for unloading goods and five for loading; the draught varies between 7.3 and

[2] According to recent Press reports, the production of Iraq is expected to reach 5.5 to 6 million tons in 1950.

1. [the Shatt al-Arab--Analyst]

504 9.1 metres and is 9.7 metres by the buoys. The port has a floating crane with a capacity of thirty tons; a derrick with a capacity of eighty tons; seven general wharves, which cover an area of 13,000 square metres, are equipped with cranes with a capacity of up to eight tons and are served by the railway; and eight warehouses with an area of altogether 18,600 square metres.

According to authoritative sources, the port installations of Basra have been improved greatly in recent years by the addition of approximately 600 metres of docking space, by new cranes and more railway lines. The port of Basra is equipped with tugs and many barges and lighters; it also has a life-boat and two barges for life-saving, some divers and workshops for minor repairs. A railway links the port to Baghdad. Ma'agil has a modern airport.

The anchorage at Fao has a wooden jetty with a depth of 0.91 metres, and there is also a five-ton mobile crane and a repair shop for the dredgers.[3]

505 The port of Basra is in regular shipping communication with the United Kingdom, the United States, various European countries, India and the ports of the Persian Gulf. Basra is a regular port of call of many foreign shipping companies. Attempts to set up an Iraqi merchant marine have not yet succeeded.

503 Apart from the maintenance of the Ruka Channel, funds have been allocated for the purchase of new dredgers, in order to dig a new, more direct channel south of the existing one.